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### Deposited in DRO:

27 July 2015

### Version of attached file:

Published Version

### Peer-review status of attached file:

Peer-reviewed

### Citation for published item:

Alderson-Day, B. and Fernyhough, C. (2014) 'More than one voice : investigating the phenomenological properties of inner speech requires a variety of methods.', *Consciousness and cognition*, 24 . pp. 113-114.

### Further information on publisher's website:

<http://dx.doi.org/10.1016/j.concog.2013.12.012>

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## Commentary

More than one voice: Investigating the phenomenological properties of inner speech requires a variety of methods<sup>☆</sup>Ben Alderson-Day, Charles Fernyhough<sup>\*</sup>

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We welcome Hurlburt, Heavey & Kelsey's (2013) nuanced descriptions of inner speech emerging from the Descriptive Experience Sampling (DES) method, and their thoughtful exploration of implications for theorising about inner speech and verbal thinking. Their characterisation of inner speaking as a heterogeneous and multidimensional experience makes a valuable contribution to our understanding of this important and neglected phenomenon. Our comments concern the characterisation of our own self-report scale on the phenomenology of inner speech, limitations of the DES method, and further implications for this research area.

The Varieties of Inner Speech Questionnaire (VISQ) assesses the self-reported quality of inner speech in terms of four characteristics: *dialogicality*, *evaluative/motivational content*, *condensation* and the presence of *other voices*. Generation of VISQ items was motivated by a broad range of theoretical concerns (McCarthy-Jones & Fernyhough, 2011), but even so these dimensions should not be interpreted as exhausting the potential variability in inner speech. In the initial validation study (McCarthy-Jones & Fernyhough, 2011), around three-quarters of participants described their inner speech as being dialogic in some way, while there were also high (over 80%) endorsement rates for evaluative/motivational aspects. Reports of condensation and other voices were less prevalent but nevertheless endorsed by a reasonable minority of participants (*ibid.*). We have observed similar results in a recent replication (Alderson-Day et al., under review), and believe that our findings are broadly consistent with the phenomenological variation in inner speaking reported by Hurlburt et al., both within and between individuals.

We also accept that instruments like the VISQ may overestimate the incidence of inner speech, for some of the reasons that Hurlburt et al. give (although note that the VISQ was designed to assess phenomenological *variation* rather than inner speech *frequency*). It would certainly be interesting to extend the VISQ to include items relating to the distinction between inner speaking and inner hearing. The discussion of assumptions relating to shared meanings is valuable; a problem for all such self-report measures is that it is rarely possible in advance to establish common ground on such conceptual issues. However, the same point applies to DES, which, despite its careful bracketing of presuppositions, inevitably operates against a background of shared assumptions about the nature of inner speech.

Take the example of condensed inner speech, argued by Fernyhough (2004) to represent an important variant of ordinary inner speech, and likely to overlap with the DES categories of 'partially unworded speaking' and 'unworded inner speech' (and perhaps even 'unsymbolized thinking'; see below). Hurlburt et al.'s report that the former is infrequent is unsurprising in the context of participants' background assumptions about what kind of thing inner speech can be. We recognise DES's idiographic sensitivity to the nuances of individual experience, but it is surely impossible to remove or control for all such pre-existing cultural understandings. There are grounds for informing participants about variation in inner speech, while being careful to avoid suggestion: note that under certain conditions it is acceptable (in a non-leading manner) to 'describe' (Hurlburt et al., 2013, p. 1486, inner speaking vs. inner hearing) or to allow participants to 'learn to apprehend' (Hurlburt et al., 2013, unsymbolized thinking) a relevant concept in DES. We would make similar arguments about categories,

<sup>☆</sup> Commentary on Hurlburt, Russell T., Heavey, Christopher L., & Kelsey, Jason M. (2013). Toward a phenomenology of inner speaking. *Consciousness and Cognition*, 22 (4), 1477–1494.

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validated by empirical research, such as condensed inner speech and dialogic inner speech. If cultural understandings of inner experience changed to bring such distinctions into common discourse, the frequency of related DES categories might also be expected to change.

There are further reasons why DES might underestimate the frequency of inner speech and its sub-types. Take the example on p. 1481, where the participant initially reported the experience as involving inner speech, and subsequently revised their view. DES sets the bar for reporting inner speech quite high, in that the participant is not only required to report that there were words but also to say what they were. Granted, DES (a method in which both authors have some experience) aims to ensure that participants become better at reporting on the exact words in their experience. But such reports are still mediated by memory, known to be rather insensitive to verbatim information (Sachs, 1967). Some genuine cases of inner speech might not be classified as such simply because the verbatim details are forgotten. A further possibility is that the temporal precision of DES might underestimate the incidence of expanded inner dialogues (Fernyhough, 2004), capturing one 'voice' of the dialogue but not the other.

The Vygotskian theory that partly motivated our initial VISQ study is guided by an assumption that inner speech must be understood within a developmental context. Here, more work is needed to understand the relations between Vygotsky's theory (as articulated by, e.g. Fernyhough, 2004; Fernyhough & McCarthy-Jones, 2013) and the categories of inner experience described by DES. The endpoint of the processes of transformation described by Vygotsky to accompany internalisation is a stage of 'thinking in pure meanings' (Vygotsky, 1987), in which all phenomenal properties of the language that transforms thinking are stripped away. This form of thinking clearly cannot be distinguished from DES's 'unsymbolized thinking', and yet in Vygotskian terms it is a form of verbal thinking. Indeed, the most abbreviated form of condensed inner speech described by Fernyhough (2004) will have no phenomenal linguistic properties, while other forms of condensed inner speech will be more like DES's 'partially unworded speaking' and 'unworded inner speech'. This may also include condensed forms of inner dialogue, which would otherwise be missed under Hurlburt et al.'s classification. The intriguing findings from DES challenge us to understand better how thinking and language work together in cognition, in development and in experience.

Self-report methods such as questionnaires are certainly not ideal tools for assessing subjective experience. They involve a trade-off between the possibility of gathering data from statistically meaningful numbers and the level of idiographic detail that can be gathered from a single respondent. Self-report methods do offer the chance to validate theoretical constructs via relationships with other variables, and to generalize results to the wider population. As Hurlburt et al. indicate with their suggestion of DES/self-report 'hybrids', the way forward when measuring something as slippery as inner speech is to draw on the strengths of different technologies. Different methods will present different views of the phenomenon, but those disparities can be instructive. An openness to multiple methods may allow scientists to begin to triangulate knowledge and evidence on the characteristics of inner speech, in much the same way that cognitive neuroscience draws on single-case studies, lesion data, and neuroimaging to make inferences about cognitive function.

## Acknowledgment

The authors are supported by a Wellcome Trust Strategic Award, "Hearing The Voice", WT098455.

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